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LOWE HAUPTMAN HAM & BERNER, LLP  
1700 DIAGONAL ROAD  
SUITE 300  
ALEXANDRIA, VA 22314

EXAMINER
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PATEL, MUNJALKUMAR C

ART UNIT	PAPER NUMBER
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2617

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,171	<b>Applicant(s)</b> KIM, YOUNG-LAK	
	<b>Examiner</b> Munjal Patel	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1, 2, 4-7, and 9-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Amerga et al (US Patent # US 7,110,765 B2)** as applied to claims above, herein after referred as **Amerga**, and further in view of **Choi et al.(US Patent # US 7,096020 B2)** herein after referred as **Choi**.

4. **Consider claim 1, Amerga** discloses a method of switching between a WCDMA modem and a CDMA-2000 modem of an MM-MB (multimode-multiband) terminal (**Amerga: Fig 3 & column 5 lines [43-48] discloses system which can perform modem switching (WCDMA & CDMA-2000) in a system, which is multimode-**

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**multiband functionality**), when the MM-MB terminal being in a WCDMA idle state **(Amerga: column 5 lines [43-46] discloses WCDMA system & Col 4 lines [45-48] discloses idles mode cell reselection)** moves from an overlay zone into a CDMA-2000 zone **(Amerga: column 5 lines [47-48] discloses CDMA2000 system)**, said method comprising the steps of:

- (a) receiving a WCDMA signal transmitted from a WCDMA system **(Amerga: Fig 2: tuning receiver 220)**, and measuring **(Amerga: Column 6, lines [12-16] Signal strength estimator)** an  $E_c/I_o$  (energy of carrier/interference of others) value by using the WCDMA signal **(Amerga: Col 8 line [45] discloses  $E_c/I_o$  measurement)**;
- (b) determining **(Amerga: Column 6 lines [64-67] decision block 320, column 7 lines [1-6])** whether the  $E_c/I_o$  **(Amerga: Column 8, lines [45-46], Fig 5A & 5B, step 330)** value is lower than a predetermined CDMA-2000 ON threshold  $TH_{ON}$  **(Amerga: Column 8 lines [47]  $Q_{qual\ min}$ = threshold for minimum required quality level of the cell)**;
- (c) if it is determined at step (b) that the  $E_c/I_o$  value is lower than  $TH_{ON}$  **(Amerga: Column 8 lines [35] Equation Squal)**, starting to measure a time lapse **(Amerga: Column 8, lines [11-14] fig 3: DRX cycle)**, wherein the time lapse is a cumulative time during which the  $E_c/I_o$  value remains lower than the CDMA-2000 ON threshold  $TH_{ON}$  **(Amerga: Fig 5A & column 10 lines [44-49] discloses a timer that indicates how long (cumulative) a cell has met the selection criteria)**, and determining whether the time lapse exceeds a preset CDMA-2000 ON condition time  $H_d$  **(Amerga: Column 9 lines [15] N cycles)**;

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(d) if it is determined at step (c) that the time lapse exceeds  $H_d$ , activating the CDMA-2000 modem (**Amerga: Column 9 lines [12-17]**), and

(e) performing an initialization for a CDMA-2000 system to switch the MM-MB terminal from the WCDMA idle state into a CDMA-2000 idle state (**Amerga: Fig 5A & 5B, Column 9 lines [12-17][21-57]**).

5. **However, Amerga** fails to disclose specifically Multi Mode-Multi Band terminal which has CDMA-2000 modem & WCDMA modem & the CDMA-2000 modem is activated before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still being activated to keep the MM-MB terminal in the WCDMA idle state.

6. **In** a similar field of endeavor **Choi** discloses a System and method for implementing a handoff using a multiparty service in a mobile communication system. In addition, **Choi** discloses Multi Mode-Multi Band terminal which has CDMA-2000 modem, WCDMA modem (**Choi: Fig 2, 3 & Column 3 lines [56-57]**) & the CDMA-2000 modem is activated before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still being activated to keep the MM-MB terminal in the WCDMA idle state (**Choi: Col 6 lines [58] - Col 7 lines [17] discloses process of Soft handoff between WCDMA and CDMA2000, hence current call connection has to remain active till the next call connection is confirmed and functional before releasing current connection**).

7. **Therefore**, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the well known teaching of **Choi** into the

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system of **Amerga** in order to implement Soft handoff between heterogeneous networks **(Choi: Column 2 lines [41-45])**.

8. **Consider claim 2, Amerga** in view of **Choi** discloses the method of claim 1, wherein the MM-MB terminal **(Choi: Fig 2, 3 & Column 3 lines [56-57])** inspects a CPICH (common pilot channel) periodically to receive the WCDMA signal at step (a) **(Amerga: column 7 lines [59-65])**. This claim is rejected for the same motivation as claim 1.

9. **Consider claim 4, Amerga** in view of **Choi** discloses everything in claim 1 as above, along with initialization at step (e) is performed 'through a system determination sub state **(Amerga: Fig 5A: 504)**, a pilot channel acquisition sub state **(Amerga: Fig 5A: 502)** and a synchronous channel acquisition sub state **(Amerga: Fig 5A: 552)**. This claim is rejected for the same motivation as claim 1.

10. **Consider claim 5, Amerga** in view of **Choi** discloses everything in claim 1 as above along with after being switched **(Amerga: Fig 5A, 5B & column 9 lines [12-17][21-57])** into the CDMA-2000 idle state at step (e), the MM-MB terminal deactivates the WCDMA modem **(Amerga: column 8 lines [11-28])**. This claim is rejected for the same motivation as claim 1.

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11. **Consider claim 6, Amerga** discloses a method of switching between a WCDMA modem and a CDMA-2000 modem of an MM-MB terminal, when the MM-MB terminal moves from an overlay zone into a CDMA-2000 zone while handling a WCDMA call, said method comprising the steps of:

(a) while the MM-MB terminal is handling the WCDMA call by the active WCDMA modem (**process of soft handover**), receiving a WCDMA signal transmitted from a WCDMA system, and measuring an Ec/Io (energy of carrier/interference of others) value by using the WCDMA signal (**Amerga: column 8 lines [30-48] discloses measurement of Ec/Io using WCDMA signal**);

(b) determining (**Amerga: column 6 lines [64-67] decision block 320, column 7 lines [1-6]**) whether the Ec/Io value (**Amerga: column 8 lines [45-46], Fig 5A & 5B, step 330**) is lower than a predetermined CDMA- 2000 ON threshold THoN (**Amerga: column 8 lines [47] Q-qual min = threshold for minimum required quality level of the cell**);

(c) if it is determined at step (b) that the Ec/Io value is lower than THoN (**Amerga: column 8 lines [35] Equation Squal**), starting to measure a time lapse (**Amerga: Column 8 lines [11-14], Fig 3:DRX cycle**), wherein the time lapse is a cumulative time during which the Ec/Io value remains lower than the CDMA-2000 ON threshold THoN (**Amerga: Fig 5A & Column 10 lines [44-49] discloses a timer that indicates how long (cumulative) a cell has met the selection criteria**), and determining (**Amerga: column 8 lines [11-14], Fig 3: determining based on consecutive DRX cycles**)

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whether the time lapse exceeds a preset CDMA-2000 ON condition time Hd (**Amerga: column 9 lines [15] N cycles**);

(d) before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still actively handling the WCDMA call if it is determined at step (c) that the time lapse exceeds Hd, activating the CDMA-2000 modem (**Amerga: column 9 lines [12-17]**), and then determining whether the WCDMA call has been terminated (**Amerga: Fig 5A & 5B : 550, 552**); and (e) if the WCDMA call is determined at step (d) to have been terminated, performing an initialization for a CDMA-2000 system to switch (**Amerga: Fig 5A, 5B & column 9 lines [12-17][21-57]**) the MM-MB terminal into a CDMA-2000 idle state (**Amerga: column 9 lines [12-17][21-23]**).

**However, Amerga** fails to disclose specifically when the MM-MB terminal moves from an overlay zone into a CDMA-2000 zone while handling a WCDMA call & while the MM-MB terminal is handling the WCDMA call by the WCDMA modem which is being activated, receiving a WCDMA signal transmitted from a WCDMA system, and measuring an Ec/Io (energy of carrier/interference of others) value by using the WCDMA signal.

12. In a similar field of endeavor **Choi** discloses a System and method for implementing a handoff using a multiparty service in a mobile communication system. In addition, **Choi** discloses when the MM-MB terminal moves from an overlay zone into a CDMA-2000 zone while handling a WCDMA call (**Choi: Col 6 lines [58] - Col 7 lines [17] discloses Dual band dual mode terminal, further on column 4 lines [57-60] discloses terminal also supplies power to CDMA unit i.e. terminal moves from**

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**overlay zone in to CDMA zone while handling a WCDMA call)** while the MM-MB terminal is handling the WCDMA call by the WCDMA modem which is being activated **(The examiner assumes this feature as “While the MM-MB terminal is handling the WCDMA call by the active WCDMA modem” i.e. process of soft handover)**, receiving a WCDMA signal transmitted from a WCDMA system, and measuring an  $E_c/I_o$  (energy of carrier/interference of others) value by using the WCDMA signal **(Choi: Fig 2, 3 & Column 3 lines [56-57])** & switching between a WCDMA modem and a CDMA-2000 modem of an MM-MB terminal, when the MM-MB terminal moves from an overlay zone into a CDMA-2000 zone while handling a WCDMA call as taught by **Choi (Choi: Col 6 lines [58] - Col 7 lines [17] discloses process of Soft handoff between WCDMA and CDMA2000, hence current call connection has to remain active till the next call connection is confirmed and functional before releasing current connection).**

13. **Therefore**, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the well known teaching of **Choi** into the system of **Amerga** in order to implement Soft handoff between heterogeneous networks **(Choi: Column 2 lines [41-45])**.

14. **Consider claim 7, Amerga** in view of **Choi** discloses the method of claim 6, wherein the MM-MB terminal inspects a CPICH (common pilot channel) periodically to receive the WCDMA signal at step (a) **(Amerga: Column 8 lines [59-65])**; and

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the CDMA-2000 modem is activated in step (d) while the WCDMA call is still being handled by the WCDMA modem (**Choi: Column 7 lines [09-17]**). This claim is rejected for the same motivation as claim 6.

15. **Consider claim 9, Amerga** in view of **Choi** discloses the method of claim 6, wherein, if the WCDMA call is determined at step (d) to have not been terminated, the method further includes the steps of:

(d1) determining (**Amerga: Fig 3:320**) whether the  $E_c/I_o$  value (**Amerga: Column 8 lines [45-46], Fig 5A, 5B , step 330**) is higher than a predetermined CDMA- 2000 OFF threshold  $TH_{OFF}$  (**Amerga: Fig 5A & Column 10 lines [44-49]**) which is lower than  $TH_{ON}$  (**Amerga:  $S_{intra search}$  Floor (higher threshold)**);

(d2) if it is determined at step (d1) that the  $E_c/I_o$  value (**Amerga: Column 8 lines [45-46], Fig 5A, 5B , step 330**) is higher than  $TH_{OFF}$ , starting to measure another time lapse, wherein said another time lapse is a cumulative time during which the  $E_c/I_o$  value remains higher than  $TH_{OFF}$  (**Amerga: Col 10 lines [44-49] discloses use of timers to calculate how long the cell criteria was met, hence it is cumulative time, also further discloses in Col 9 lines [24-42] regarding various different way to use threshold to trigger monitoring cell, applicant is using a range with upper and lower bound, Amerga is using  $S_{intra search}$  Floor (higher threshold)**), and determining whether said another time lapse exceeds a preset CDMA-2000 OFF condition time  $H_c$  (**Amerga: Fig 5A: 508, 510 & Column 9 lines [09-21]**); and

(d3) if it is determined at step (d2) that said another time lapse exceeds  $H_c$ , deactivating

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the CDMA-2000 modem that has been activated at step (d) and returning to step (a) **(Amerga: Fig 5A: 508, 510 & Column 9 lines [09-21])**. This claim is rejected for the same motivation as claim 6.

16. **Consider claim 10, Amerga** in view of **Choi** discloses the method of claim 9, wherein, if it is determined at step (d1) that the  $E_c/I_o$  value is not higher than THoFF the MM-MB terminal returns to step (d) to determine **(Amerga: Fig 5A: 508, 510 & Column 9 lines [09-21])** once more whether the WCDMA call has been terminated. This claim is rejected for the same motivation as claim 9.

17. **Consider claim 11, Amerga** in view of **Choi** discloses the method of claim 9, the CDMA-2000 modem is deactivated at step (d3) regardless of whether the  $E_c/I_o$  value is higher than THoN or not **(Amerga: Fig 5A: 508, 510 & Column 9 lines [09-21])**. This claim is rejected for the same motivation as claim 9.

18. **Consider claim 12, Amerga** in view of **Choi** discloses the method of claim 10, wherein, if it is determined at step (d2) that the another time lapse does not exceed the CDMA-2000 OFF condition time  $H_c$  the MM-MB terminal returns to step (d) to determine once more whether the WCDMA call has been terminated **(Amerga: Fig 5A: 506, 508 & 554)**. This claim is rejected for the same motivation as claim 10.

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19. **Consider claim 13, Amerga** in view of **Choi** discloses the method of claim 6, wherein step (e) further includes the sub-steps of:

(e1) inspecting another service channel FA (frequency assignment) of the WCDMA system (**Amerga: Fig 5B: 510**);

(e2) determining whether another WCDMA signal is found (**Amerga: Fig 5B:512, 514**); and

(e3) if said another WCDMA signal is found, switching the MM-MB terminal into a WCDMA idle state (**Amerga: Fig 5B:514 & Column 4 lines [58-60]**). This claim is rejected for the same motivation as claim 6.

20. **Consider claim 14, Amerga** in view of **Choi** discloses the method of claim 13, wherein, if it is determined at sub- step (e2) that no other WCDMA signal is found, the MM-MB terminal performs said initialization into the CDMA-2000 system to be switched (**Amerga: Fig 5A & 5B & Column 9 lines [12-17][21-57]**) into said CDMA-2000 idle state (**Amerga: Fig 3:330-370 & Column 8 lines [65-68]**). This claim is rejected for the same motivation as claim 13.

21. **Consider claim 15, Amerga** in view of **Choi** discloses the method of claim 14, wherein, after being switched (**Amerga: Fig 5A & 5B & Column 9 lines [12-17] [21-57]**) into the CDMA-2000 idle state, the MM-MB terminal deactivates the WCDMA modem. This claim is rejected for the same motivation as claim 14 along with claim 5 as

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method of MM-MB terminal deactivating the modem after being switched to a particular state will remain identical.

22. **Consider claim 16, Amerga** discloses a method of switching between a CDMA-2000 modem and a WCDMA modem of an MM-MB (multimode-multiband) terminal, when the MM-MB terminal being in a CDMA-2000 idle state moves from a CDMA-2000 zone into an overlay zone, said method comprising the steps of:
- (a) monitoring (**Amerga: Fig 3:310, 320, 330**) a paging channel of a CDMA-2000 system periodically while maintaining the MM-MB terminal in the CDMA-2000 idle state (**Amerga: Fig 5A, 5B & Column 4 lines [58-61] & Column 5 lines [47-48] discloses a paging channel of the serving cell, in this case it will be the CDMA-2000 as MM-MB terminal is maintained in CDMA-2000 idle state**);
  - (b) analyzing an overhead message received from the CDMA-2000 system and determining whether the MM-MB terminal is located in the overlay zone (**Amerga: Fig 5A: 504-506-508, & Fig 5B**);
  - (c) if the MM-MB terminal is determined to be located in the overlay zone, activating the WCDMA modem (**Amerga: Fig 3:350-360**) while maintaining the CDMA-2000 modem in an activated state (**The examiner assumes this feature as “While the MM-MB terminal is handling the CDMA2000 call by the active CDMA modem” i.e. process of soft handover**); and
  - (d) performing an initialization process for a WCDMA system to switch (**Amerga: Fig 5A, 5B & Column 9 lines [12-17][21-57]**) the MM-MB terminal from the CDMA-2000

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idle state into a WCDMA idle state (**Amerga: Fig 3:370**). However, **Amerga** fails to disclose specifically Multi Mode-Multi Band terminal which has CDMA-2000 modem & WCDMA modem & if the MM-MB terminal is determined to be located in the overlay zone, activating the WCDMA modem while maintaining the CDMA-2000 modem in an activated state.

23. In a similar field of endeavor **Choi** discloses a System and method for implementing a handoff using a multiparty service in a mobile communication system. In addition, **Choi** discloses a terminal with multi-mode multi-band which has CDMA modem and WCDMA modem which serves functionally same as MM-MB terminal if the MM-MB terminal is determined to be located in the overlay zone, activating the WCDMA modem while maintaining the CDMA-2000 modem in an activated state as taught by **Choi (Choi: Fig 2, 3 & Column 3 lines [56-57] & Col 6 lines [58] - Col 7 lines [17] discloses process of Soft handoff between WCDMA and CDMA2000, hence current call connection has to remain active till the next call connection is confirmed and functional before releasing current connection).**

24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the well known teaching of **Choi** into the system of **Amerga** in order to implement Soft handoff between heterogeneous networks (**Choi: Column 2 lines [41-45]**).

25. Consider claim 17, **Amerga** in view of **Choi** discloses the method of claim 16, wherein the MM-MB terminal determines (**Amerga: Fig 5A, 5B**) whether the MM-MB

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terminal is located in the overlay zone by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b). **Although Choi** discloses BSC ID, Cell ID (**Choi: Col 2 lines [20-35]**). **However, Amerga** in view of **Choi** fails to disclose explicitly “by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b)”.

26. **However** it is obvious to one of ordinary skill in the art that one of the main advantages of implementing CDMA technology is the use of soft handoffs, which allows a mobile device to monitor multiple base stations simultaneously. Further, it is common practice for the current base station to provide information (*i.e.* PN code offsets) of the surrounding neighboring cells in order for the mobile device to easily monitor the signal strength of the handoff candidates in order to facilitate fast acquisition and accurate measurements during soft handover.

27. **Consider claim 18, Amerga** in view of **Choi** discloses the method of claim 16, wherein, if the MM-MB terminal is not determined to be located in the overlay zone at step (b), the MM-MB terminal returns to step (a) to monitor the paging channel again (**Amerga: Fig 3:310-330**). This claim is rejected for the same motivation as claim 16.

28. **Consider claim 19, Amerga** in view of **Choi** discloses the method of claim 16, wherein, after being switched into the WCDMA idle state (**Amerga: Fig 5A, 5B & Col. 9 lines [12-17], [21-57]**), the MM-MB terminal deactivates the CDMA-2000 modem. This claim is rejected for the same motivation as claim 16 along with the claim 5 as method

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of MM-MB terminal deactivating the modem after being switched to a particular state will remain identical.

29. **Consider claim 20, Amerga** discloses a method of switching between a CDMA-2000 modem and a WCDMA modem of an MM-MB (multimode-multiband) terminal, when the MM-MB terminal being in a CDMA-2000 traffic state moves from a CDMA-2000 zone into an overlay zone, said method comprising the steps of:

(a) monitoring a paging channel of a CDMA-2000 system periodically while maintaining the MM-MB terminal in the CDMA-2000 traffic state and the CDMA modem in an activated state to handle a CDMA-2000 call **(Amerga: Fig 3:310-330 & Col 4 lines [48-52] that his invention can readily adaptable in any mode (i.e. traffic mode as well));**

(b) analyzing an overhead message received from the CDMA-2000 system and determining whether the MM-MB terminal is located in the overlay zone **(Amerga: Fig 5A: 504, 506, 508);**

(c) if the MM-MB terminal is determined to be located in the overlay zone, determining whether the CDMA-2000 call has been terminated while maintaining the MM-MB terminal in the CDMA-2000 traffic state **(Amerga: Fig 3:350-360 & Col 4 lines [48-52] that his invention can readily adaptable in any mode (i.e. traffic mode as well));**

(d) if the CDMA-2000 call is determined to have been terminated, activating the WCDMA modem **(Amerga discloses cell selection (when there is no cell selected, hence first time or when there is no modem active) and reselection method);** and

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(e) performing an initialization process for a WCDMA system (**Amerga: Fig 5A & 5B column 9 lines [12-17][21-57]**) to switch the MM-MB terminal into a WCDMA idle state (**Amerga: Fig 3:370**). However, **Amerga** fails to disclose specifically Multi Mode-Multi Band terminal which has CDMA-2000 modem & WCDMA modem.

30. In a similar field of endeavor **Choi** discloses a System and method for implementing a handoff using a multiparty service in a mobile communication system. In addition, **Choi** discloses a terminal with multi-mode multi-band which has CDMA modem and WCDMA modem which serves functionally same as MM-MB terminal as taught by **Choi** (**Choi: Fig 2, 3 & Column 3 lines [56-57] & Col 6 lines [58] - Col 7 lines [17]**).

31. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the well known teaching of **Choi** into the system of **Amerga** in order to implement Soft handoff between heterogeneous networks (**Choi: Column 2 lines [41-45]**).

32. Consider claim 21, **Amerga** in view of **Choi** discloses the method of claim 20, wherein the MM-MB terminal determines (**Amerga: Fig 5A, 5B**) whether the MM-MB terminal is located in the overlay zone by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b). Although **Choi** discloses BSC ID, Cell ID (**Choi: Col 2 lines [20-35]**). However, **Amerga** in view of **Choi** fails to disclose explicitly “by investigating a base ID of a system parameter message included in the overhead message analyzed at step (b)”.

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33. **However** it is obvious to one of ordinary skill in the art that one of the main advantages of implementing CDMA technology is the use of soft handoffs, which allows a mobile device to monitor multiple base stations simultaneously. Further, it is common practice for the current base station to provide information (*i.e.* PN code offsets) of the surrounding neighboring cells in order for the mobile device to easily monitor the signal strength of the handoff candidates in order to facilitate fast acquisition and accurate measurements during soft handover.

34. **Consider claim 22, Amerga** in view of **Choi** discloses the method of claim 20, wherein, if the MM-MB terminal is not determined to be located in the overlay zone at step (b), the MM-MB terminal returns to step (a) to monitor the paging channel again (**Amerga: Fig 3:310-330**). This claim is rejected for the same motivation as claim 20.

35. **Consider claim 23, Amerga** in view of **Choi** discloses the method of claim 20, wherein, after being switched (**Amerga: Fig 5A, 5B & Column 9 lines [12-17] [21-57]**) into the WCDMA idle state, the MM-MB terminal deactivates the CDMA-2000 modem. This claim is rejected for the same motivation as claim 20 along with the claim 5 as method of MM-MB terminal deactivating the modem after being switched to a particular state will remain identical.

36. **Consider claim 24, Amerga** discloses a multimode-multiband terminal capable of accommodating both a synchronous CDMA-2000 service and an asynchronous

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WCDMA service and operating in at least two frequency bands, said terminal comprising:

an RF (radio frequency) antenna **(Amerga: Fig 2:210)** for transceiving a CDMA-2000 signal and/or a WCDMA signal;

an RF transceiver **(Amerga: receiver 220 in column 6 line [40])** coupled to the RF antenna for demodulating a WCDMA pilot signal received from the RF antenna and outputting the demodulated WCDMA pilot signal **(Amerga: output of demodulator 230 in column 6 lines [40])**;

a pilot signal measurement unit **(Amerga: Signal strength estimator 280 in Column 6 line[41])** coupled to the RF transceiver for measuring an intensity of the demodulated WCDMA pilot signal to generate an  $E_c/I_o$  value;

a WCDMA modem **(Amerga: Modem described in column 6 line [32-34])** and a CDMA-2000 modem **(Amerga: Modem described in column 6 line [32-34])** coupled to the RF transceiver for processing a digital signal received from the RF transceiver **(Amerga: Receiver 220 in column 6 line [40] along with transmission capability described in column 6 lines [32-34])** and performing a call processing according to protocols defined by a WCDMA standard **(Amerga: Column 5 lines [17-21])** and a CDMA-2000 standard **(Amerga: Column 5 lines [17-21] & Column 3 lines [5-15])**, respectively;

a memory **(Amerga: Fig 2:270)** for storing a modem-to-modem switching program configured **(Amerga: Column 6 lines [48-51])** for switching **(Amerga: Modem described in column 6 lines [12-17][21-57])** between the WCDMA modem **(Amerga:**

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**Modem described in column 6 lines [32-34])** and the CDMA-2000 modem (**Amerga:**

**Modem described in column 6 lines [32-34])** based the  $E_c/I_o$  value; and

a controller (**Amerga: Processor described in column 6 lines [37-55])** coupled to the pilot signal measurement unit, the memory and the WCDMA and CDMA-2000 modems for

(i) receiving the  $E_c/I_o$  value from the pilot signal measurement unit (**Amerga: Column 8 lines [45-56])**, and

(ii) loading and executing the modem-to-modem switching program (**Amerga:**

**Instructions described in column 6 lines [48-51])** from the memory to activate the

CDMA-2000 modem (**Amerga: Modem described in column 6 lines [32-34] &**

**activation takes place based on result of calculation of  $S_{qual}$  &  $S_{rxlev}$  which are based on  $E_c/I_o$  along with the threshold values  $Q_{qualmin}$  &  $Q_{rxlevmin}$** ), while the

WCDMA modem is still being activated (**The examiner assumes this feature as**

**“While the MM-MB terminal is handling the CDMA2000 call by the active CDMA**

**modem” i.e. process of soft handover**), if a time lapse, during which the  $E_c/I_o$  value

remains lower than a predetermined CDMA-2000 ON threshold  $TH_{ON}$  (**Amerga:**

**$S_{intrasearch}$  Floor (higher threshold)**), is greater than a preset CDMA-2000 ON condition

time  $H_d$  (**Amerga: Col 9 lines [12-17])**. However, **Amerga** fails to disclose specifically

Multi Mode-Multi Band terminal which has CDMA-2000 modem & WCDMA modem.

37. In a similar field of endeavor **Choi** discloses a System and method for

implementing a handoff using a multiparty service in a mobile communication system. In

addition, **Choi** discloses a terminal with multi-mode multi-band which has CDMA

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modem and WCDMA modem which serves functionally same as MM-MB terminal as taught by **Choi (Choi: Fig 2, 3 & Column 3 lines [56-57] & Col 6 lines [58] - Col 7 lines [17])**.

38. **Therefore**, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the well known teaching of **Choi** into the system of **Amerga** in order to implement Soft handoff between heterogeneous networks (**Choi: Column 2 lines [41-45]**).

39. **Consider claim 25, Amerga** in view of **Choi** discloses The multimode-multiband terminal of claim 24, wherein the controller (**Amerga: Processor described in column 6 lines [37-55]**) loads the modem-to-modem switching program (**Amerga: Column 6 lines [48-51]**) at the moment the Ec/Io value starts to be lower than the CDMA-2000 ON threshold THoN or when it is determined that the multimode-multiband terminal enters an overlay zone by analyzing system information. This claim is rejected for the same motivation as claim 24.

40. **Consider claim 26, Amerga** in view of **Choi** discloses the multimode-multiband terminal of claim 24, wherein, only after the CDMA-2000 modem has been activated and an initialization into a CDMA- 2000 system has been completed so that the multimode-multiband terminal has been completely switched into a CDMA-2000 idle state, does the controller deactivate the WCDMA modem. **However, Amerga** fails to

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disclose explicitly "the controller deactivates the WCDMA modem" as a part of cell reselection/hand off.

41. **However** it is obvious to one of the ordinary skill in the art that when switching modems in a MM-MB for the purpose of handover, it is necessary to deactivate the modem which is not being used for the purpose of conserving power as disclosed by **Amerga (Amerga: Abstract)**.

42. **Consider claim 27, Amerga** in view of **Choi** discloses the multimode-multiband terminal of claim 24, wherein, even if the CDMA-2000 modem has been activated, based on the  $E_c/I_o$  value being lower than  $THoN$  during the time lapse greater than  $H_a$ , the controller still deactivates the CDMA-2000 modem if another time lapse, during which the  $E_c/I_o$  value is maintained higher than a predetermined CDMA-2000 OFF threshold  $THoFF$ , is greater than a preset CDMA-2000 OFF condition time  $H_c$ , wherein  $THoN$  is greater than  $THoFF$  (**Amerga: Fig 5A, 5B & column 9 lines [06-23] &  $S_{intrasearch}$  Floor (higher threshold)**). This claim is rejected for the same motivation as claim 24.

43. **Consider claim 28, Amerga** in view of **Choi** discloses the multimode-multiband terminal of claim 24, wherein, only after the WCDMA modem has been activated and an initialization into a WCDMA system has been completed so that the multimode-multiband terminal has been completely switched (**Amerga: Fig 5A, 5B & Column 9 lines [12-17] [21-57]**) into a WCDMA idle state, does the controller deactivate the

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CDMA-2000 modem. This claim is rejected for the same motivation as claim 24 along with claim 5 as method of MM-MB terminal deactivating the modem after being switched to a particular state will remain identical.

44. **Consider claim 29, Amerga** in view of **Choi** discloses the multimode-multiband terminal of claim 27, wherein information upon the CDMA-2000 ON threshold THoN, the CDMA-2000 ON condition time Hd, the CDMA-2000 OFF threshold THoR and the CDMA-2000 OFF condition time Hc are stored in the memory. This claim is rejected as **Amerga** discloses a processor 260 connected to memory which stores data along with instruction for performing various procedures and methods (**Amerga: Column 6 lines [47-51]**). This claim is rejected for the same motivation as claim 27.

45. **Consider claim 30, Amerga** in view of **Choi** discloses the multimode-multiband terminal of claim 24, further comprising a timer for measuring the time lapse and reporting the time lapse to the controller (**Amerga: Fig 5A & Col. 10 lines [44-49] discloses a timer that indicates how long (time lapse) the cell has met the selection criteria**). This claim is rejected for the same motivation as claim 24.

### ***Response to Arguments***

46. Applicant's arguments filed 07/20/2010 have been fully considered but they are not persuasive.

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a. Applicant's argument regarding Claims 1-2,4-7, and 9-30 are said to be unpatentable under 35 U.S.C. §103(a) over Amerga in view of Choi on page 14 ¶ 1 – page 15 ¶ 3 regarding "Amerga's timer is not used for measuring the time lapse during which the Ec/Io value is below THon". However the Examiner disagree as purpose of measuring time lapse during which the Ec/Io value is below THon is to determine how long (cumulative) a cell has met the selection criteria (selection criteria is when the condition of Ec/Io value is below THon), Amerga discloses same functionality as cited, hence the Examiner's interpretation of timer being used for the measuring time lapse during which the Ec/Io value is below THon.

b. Applicant's argument on page 15 ¶ 4 – page 15 ¶ 5 regarding Amerga fails to implicitly teach the claim feature because the Examiner failed to provide the basis in fact and/or technical reasoning to reasonably support the determination that the claimed feature necessarily flows from the teaching of the applied prior art, & reason for why it would have been obvious to have modified the Amerga timer value to measure a time lapse as claimed. However the Examiner disagree and has clearly provided purpose of measuring time lapse during which the Ec/Io value is below THon is to determine how long (cumulative) a cell has met the selection criteria (selection criteria is when the condition of Ec/Io value is below THon), Amerga discloses same functionality as cited, hence the Examiner's interpretation of timer being used for the measuring time lapse during which the Ec/Io value is below THon.

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c. Applicant's argument on page 15 ¶ 6 – page 16 ¶ 3 regarding Prior art Amerga teaches away from the claimed time lapse which is cumulative time during which Ec/Io value remains lower than the CDMA-2000 ON threshold THon. However the Examiner disagree as purpose of measuring time lapse during which the Ec/Io value is below THon is to determine how long (cumulative) a cell has met the selection criteria (selection criteria is when the condition of Ec/Io value is below THon), Amerga discloses same functionality in order to perform cell reselection that requires switching of modems that is similar to switching modems that Applicants invention performs in order to receive similar goal, hence the Examiner's interpretation of timer being used for the measuring time lapse during which the Ec/Io value is below THon.

d. Applicant's argument on page 16 ¶ 4 – page 17 ¶ 3 regarding Prior art Choi fails to teach "wherein the CDMA-2000 modem is activated before the MM-MB terminal leaves the overlay zone and while the WCDMA modem is still being activated to keep the MM-MB terminal in the WCDMA idle state" in other words WCDMA idle mode handover to CDMA system. However, the Examiner disagree as cited Amerga in view of Choi clearly discloses in Amerga: Col 4 lines [45-48] regarding the possible modes for cell reselection includes idle modes as well, in other words cell reselection during idle mode & Choi:Col 6 lines [58] - Col 7 lines [17] discloses process of handoff between WCDMA and CDMA2000 by MM-MB terminal instead of simple generic terminal.

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e. Applicant's argument on page 17 ¶ 4 – page 17 ¶ 5 regarding a person of ordinary skill in the art would have modified Amerga to include handoff during traffic mode but not during idle mode as Choi fails to teach handoff process handling during idle mode. However the Examiner disagrees as Idle mode is already disclosed by Amerga (Col 4 lines [45-48]), Choi is simply showing the handoff process can be performed for MM-MB terminal as well, similar to handoff by generic terminal as shown by Amerga.

f. Applicant's argument on page 17 ¶ 6 – page 18 ¶ 1 regarding even if it would have been obvious to a person of ordinary skill in the art to combine Amerga in view of Choi, the combination would still require a call to be made and not be in idle mode as required by claim. However the Examiner disagrees as Idle mode is already disclosed by Amerga (Col 4 lines [45-48]), Choi is simply showing the handoff process can be performed for MM-MB terminal as well, similar to handoff by generic terminal as shown by Amerga.

g. Applicant's argument on page 18 ¶ 2 – page 18 ¶ 4 regarding claim 4 that "the initialization at step (e) is performed through a system determination sub state" is not taught by Amerga. However the Examiner disagrees as Amerga (Fig 5A & 5B, Col 9 lines [12-17], [21-57] as cited for step (e) & Fig. 5A:504 computation of Squal for active set to decide if cell selection is failed for active set) disclose initialization of cell reselection process by failure of N consecutive DRX cycles (Sub state of system where N consecutive DRX cycles fails).

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h. Applicant's argument on page 18 ¶ 5 – page 19 ¶ 4 regarding claim 6 that “(d) ...activating the CDMA2000 modem and then determining whether the WCDMA call has been terminated; and (e) if the WCDMA call is determined at step (d) to have been terminated, performing an initialization for CDMA2000 system...” is not taught by Amerga. However the Examiner disagrees as Amerga (Fig 5A:550, 552, & Fig 5B, Col 9 lines [12-17], [21-57] as cited for step (d) & (e)) disclose determination state for where system determines “if the Best cell is serving cell?” or “has cell selection has failed for N DRX cycles?” (i.e. is the WCDMA call connection terminated?) for handover between WCDMA and CDMA2000 & based on the decision performing the cell reselection while in idle or traffic mode & hence the system is readily adaptable for both idle and traffic mode handover, in this case transition from WCDMA to CDMA 2000 in idle mode if the answer is “yes” (i.e. failing of N DRX cycles or Best cell is not the serving cell).

i. Applicant's argument on page 19 ¶ 5 – page 20 ¶ 4 regarding claim 6 that the Examiner failed to provide “a basis in fact and technical reasoning to reasonably support the determination that the claim feature necessarily flows from the teaching of the applied prior art” , “clear articulation for obviousness”. However the Examiner disagrees as Amerga discloses cell reselection process (handover) between WCDMA and CDMA2000 in idle mode. Similarly Choi discloses MM-MB terminal performing handover between WCDMA and CDMA2000, it would have been obvious to one of ordinary skill in the art to

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incorporate the well known teaching of Choi into the system of Amerga in order to provide implementation of Soft handoff between heterogeneous networks (Choi: Col 2. lines [41-45]).

j. Applicant's argument on page 20 ¶ 5 – page 21 ¶ 1 regarding claim 9 that Amerga fails to teach steps (d1) – (d3) which are performed after the determination that the WCDMA call has not been terminated". However the Examiner disagrees as Amerga (Fig 5A:550, 552, & Fig 5B, Col 9 lines [12-17], [21-57] as cited for step (d)) disclose determination state for where system determines "if the Best cell is serving cell?" or "has cell selection has failed for N DRX cycles?" (i.e. is the WCDMA call connection terminated?, in this case answer is "no") for handover between WCDMA and CDMA2000 & based on the decision not performing the cell reselection & Amerga clearly discloses in Fig 5A & 5B : 550, 552 & Col 4 lines [48-52] that his invention can readily adaptable in any mode (i.e., Idle and traffic mode) after performing determination of handover. Claims 6 and claim 9 only provides two conditions to make a decision of handover, in claim 6 if WCDMA call is terminated &  $E_c/I_o$  value is lower than  $TH_{on}$  (i.e. system is in idle mode & entering CDMA-2000 coverage area) then perform the handover else as in claim 9 where call is active and  $E_c/I_o$  value is higher then  $TH_{off}$  (i.e. traffic mode where system is in active call & CDMA-2000 signals are not stronger and reliable than WCDMA coverage) so there is no need to perform handover (Amerga:Fig 3:360). Amerga clearly discloses conditions for

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cell selection and reselection that includes both the mode (Idle and traffic) as cited in Final office action.

k. Applicant's argument on page 21 ¶ 2 – page 21 ¶ 6 regarding claim 9 that Amerga fails to teach two thresholds  $TH_{on}$  and  $TH_{off}$  that determines the quality level of cell for handover & the Examiner failed to provide any reasoning why  $TH_{on}$  is cited as  $Q_{qual\ min}$  and  $S_{intrasearch}$ . However the Examiner respectfully disagrees as parameter  $S$  ( $S_{qual}$ ,  $S_{rxlev}$  &  $S_{intrasearch}$  etc) are directly proportionate to  $Q_{qual\ min}$  as indicated in equations 2 & 3. Threshold parameters for quality are commonly used in the Art to determine what further action is needed, in this case if the handover is needed.

l. Applicant's argument on page 21 ¶ 7 – page 22 ¶ 3 regarding claim 9 that Amerga fails to teach "another time lapse" that is cumulative time during which the  $Ec/I_o$  value remains higher than  $TH_{off}$ , where "the first time lapse" is a cumulative time during which the  $Ec/I_o$  value remains lower than  $TH_{on}$ , hence fails to teach multiple timers. However, the Examiner respectfully disagree as cited Amerga teaches (Col 10 lines [44-49]) use of timers to calculate how long the cell criteria was met, hence it is cumulative time, also further discloses (in Col 9 lines [24-42]) regarding various different way to use threshold to trigger monitoring cell, applicant is using a range with upper and lower bound, Amerga is using  $S_{intrasearch}$  Floor (higher threshold)), and determining whether said another time lapse exceeds a preset CDMA-2000 OFF condition time  $H_c$  (Amerga: Fig

5A: 508, 510 & Column 9 lines [09-21]). Amerga's  $S_{\text{intrasearch}}$  &  $S_{\text{min}}$  equates to  $S_{\text{intrasearch}}$  Floor that discloses both upper bound and lower bound.

m. Applicant's argument on page 22 ¶ 4 – page 23 ¶ 1 regarding Amerga fails to teach “deactivating the CDMA-2000 modem that has been activated at step (d) and returning to step (a)”. However, the Examiner respectfully disagrees as this feature is simple mechanism of turning off the modem when not in use for handover process. Amerga (Amerga: Fig 5A: 508, 5B: 510 & Column 9 lines [09-21]) clearly discloses cell selection and reselection method for the motivation of limiting cell reselection and increase time spent in low-power/sleep mode thus reducing the idle mode power (power conservation) that indicates deactivating the modem when not in use as in the case disclosed by applicant.

n. Applicant's argument on page 23 ¶ 2 – page 23 ¶ 5 regarding Amerga fails to teach “determine once more whether the WCDMA call has been terminated”. However the Examiner disagrees as Amerga (Fig 5A:508, Fig 5B:510, Col 9 lines [09-21] as cited) disclose determination state for where system determines “if the Best cell is serving cell?” or “has cell selection has failed for N DRX cycles?” (i.e. is the WCDMA call connection terminated?) for handover between WCDMA and CDMA2000 & based on the decision performing the cell reselection while in idle or traffic mode & in this case applicant is staying in the same state until the further condition is met to get off of the loop and proceed to next step.

o. Applicant's argument on page 23 ¶ 6 – page 24 ¶ 3 regarding Amerga fails to teach “the CDMA2000 modem is deactivated at step (d3) regardless of

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whether the  $E_c/I_o$  value is higher than  $T_{HON}$  or not". However the Examiner disagrees as Applicant's claimed feature is providing a default state where system tries to stay in WCDMA mode as much as possible. Amerga (Fig 5A:508, Fig 5B:510, Col 9 lines [09-21] as cited) disclose determination state for where system determines "if the Best cell is serving cell?" or "has cell selection has failed for N DRX cycles?" for handover between WCDMA and CDMA2000 & based on the decision performing the cell reselection while in idle or traffic mode & in this case applicant is tries to remain in the WCDMA state until the further condition is met to get off of the loop and proceed to next step.

p. Applicant's argument on page 24 ¶ 4 – page 24 ¶ 7 regarding Amerga fails to teach "if it is determined at step (d2) that the another time lapse does not exceed the CDMA2000 off condition time  $H_c$ , the MM-MB terminal returns to step (d) to determine once more whether the WCDMA call has been terminated" and hence claim 6, 9 & 10 requires three determinations whether the call has been terminated or not. However the Examiner disagrees as Amerga discloses Idle and traffic modes (Amerga:Col 4 lines [48-52]), In Idle mode can only be determined if the call is terminated. Amerga (Fig 5A:506,508,554 & Fig 5B, Col 9 lines [12-17], [21-57]) disclose determination state for where system determines "if the Best cell is serving cell?" or "has cell selection has failed for N DRX cycles?" (i.e. is the call connection terminated?) for handover between CDMA2000 and WCDMA & based on the decision performing the cell reselection while in idle or traffic mode, in this case transition from CDMA2000 to WCDMA

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decision will be based on if WCDMA is terminated, Amerga also discloses switching between CDMA2000 modem to WCDMA modem that includes saving power and unnecessary cell reselection, i.e. activating WCDMA modem when communication on CDMA2000 modem is not detected (or call is terminated).

q. Applicant's argument on page 24 ¶ 8 – page 25 ¶ 2 regarding claim 16 that Choi fails to disclose Idle-to-Idle transition, however, the examiner respectfully disagree as Amerga clearly discloses conditions for cell selection and reselection that includes both the mode (Idle and traffic) as cited in final office action.

r. Applicant's argument on page 25 ¶ 3 – page 25 ¶ 6 regarding claim 20 that Amerga fails to teach if the call is terminated, & "activation of WCDMA modem if the CDMA2000 call is determined to have been terminated". However the examiner respectfully disagree as cited in Final Office action, Amerga discloses Idle and traffic modes (Amerga:Col 4 lines [48-52]), In Idle mode can only be determined if the call is terminated. Amerga (Fig 5A:550, 552, & Fig 5B, Col 9 lines [12-17], [21-57]) disclose determination state for where system determines "if the Best cell is serving cell?" or "has cell selection has failed for N DRX cycles?" (i.e. is the call connection terminated?) for handover between CDMA2000 and WCDMA & based on the decision performing the cell reselection while in idle or traffic mode & hence the system is readily adaptable for both idle and traffic mode handover, in this case transition from CDMA2000 to WCDMA in traffic mode if the answer is "yes" (i.e. failing of N DRX cycles or Best cell is not

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the serving cell) Amerga also discloses switching between CDMA2000 modem to WCDMA modem that includes saving power and unnecessary cell reselection, i.e. activating WCDMA modem when communication on CDMA2000 modem is not detected (or call is terminated).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Munjal Patel whose telephone number is (571)270-5541. The examiner can normally be reached on 9:30-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/M. P./  
Examiner, Art Unit 2617

/Rafael Pérez-Gutiérrez/  
Supervisory Patent Examiner, Art Unit 2617